

REMARKS

Very thanks for Examination's suggestion and thanks for finding some citations about the present invention, thereby, the applicant may know more information about the invention. This case has been carefully reviewed and analyzed in view of the office action. All details of the reference prior arts are fully considered and compared with the present invention.

Responsive to the objections and rejections made of the Examiner in office action. We have amended claims. All the errors disclosed in that office action has been corrected according to the Examiner's indications disclosed in the official action.

Indeed the citations disclose some features of the present invention, and the applicant agrees with these viewpoints, however applicant discovers that some main features of the present invention are not disclosed in the citation which can form the novelty and inventive step of the present invention.

To illustrate the novelty of the present invention and overcome the objection from the citations, the applicant decides to cancel Claims 1 to 6, without prejudice or disclaimer of the subject matter thereof, and amend 7 as the following. The amendment of claim 7 can be illustrated in Figs. 3 or 4 of the present invention. The claim 8 to 12 are remained without any amendment. No new matter is added. The relation of the new claims with respect to the original claims are shown in the following.

Claims indicated numerals for reference in the remark.

Claims 1 to 6 (Cancelled)

Claim 7. (Currently Amended) A restorable conductive elastic connector comprising:

a connector capable of being sucked by a sucking unit 4 of a machining device 3; the connector being transferred by the machining device and then be adhered to a machining object;

the sucking unit 4 has an air channel 41; the air channel 41 being extended with an outlet portion at a bottom of the sucking unit 4; the outlet section having a tapered shape; and an inner end of the tapered shape with a small opening being directly connected to one end of a straight channel 41; and interior of the sucking unit is hollowed; and the air channel having a sucking ability under negative pressure;

wherein the connector is made of conductive helical spring 11, 12, 13, which is wound as a sandglass; that is, a waist portion of the helical spring is narrower than a top portion and a bottom portion thereof; and the top portion 11 of the helical spring is smaller than the bottom portion 13 and the connector can be sucked to the outlet section of the sucking unit.

Claim 8. (Previous presented) The restorable conductive elastic connector as claimed in claim 1, wherein the machining device is a SMT (surface mounting technology) machining device used in surface mounting device.

Claim 9. (Previous presented) The restorable conductive elastic connector as claimed in claim 1, wherein the machining object is a printed circuit board.

Claim 10. (Previous presented) The restorable conductive elastic connector as claimed in claim 1, wherein the machining object is conduction means for conducting

electronic signals of an electronic device.

Claim 11. (Previous presented) The restorable conductive elastic connector as claimed in claim 1, wherein the the conductive helical spring element is restorable in a reel tank.

Claim 12. (Previous presented) The restorable conductive elastic connector as claimed in claim 1, wherein the conductive helical spring is fixed to the machining object and then is sucked by a sucking unit and thus compressed so that the distance connected at a bottom of the sucking unit and a surface of the machining object is reduced.

DISCUSSION ABOUT THE NOVELTY OF THE PRESENT INVENTION

(A) Discussed about amendment in the new claim 7.

(1) In the new claim 6 we add a feature of “an inner end of the tapered shape 42 with a small opening being directly connected to one end of a straight channel 41” and moreover, “interior of the sucking unit 4 is hollowed;”

This section is illustrated in Fig. 2, which is indicated by the numerals 42, 42 and 31.

(B) For the citation USP 6,239,393

(1) Above confinement in (A) is used to identify the present invention from the citation USP 6,239,393. It is seen at the connector 16 of the citation '393 (see Fig. 3 of the citation) that a protrusion 18 is suspended in the hollow section of the connector 16. However the present invention has no this hollow section .

(2) Referring to Fig. 1 of the citation '393, it is illustrated that the top

portion of the spring 3, is smaller than the middle portion 8 of the spring and the middle portion of the spring 8 is smaller than the bottom portion 10 of the spring. The relation of the top, middle and lower portions of the springs in the citation '393 and the present invention are different. In the present invention, **the top portion 11 is greater than the middle portion 12, but is smaller than the bottom portion 13.** The middle portion 12 has the smallest size in the prior art, as shown in Fig. 1 of the present invention.

Referring to Fig. 3 of the citation '393, it is apparent that the suction portion of the citation is different from that the present invention. This is assured in the office action, since the office action does not use this part to object the present invention. However in the present invention, the suction section 4 has a channel formed by elements 31, 41 and 42 which is different from the citation '393.

(3) In operation of the present invention, when the spring 1 is socket, it will receive in the hollow space of the sucking unit 4. However the design of the present invention with a larger upper side 11 of the spring which make the spring has a larger upper surface and can be sucked the hollow space steadily. The narrow middle section 12 can make the force being completely transferred to the lower section 13 of the spring. The wide lower section 13 of the spring make the force can be dispersed uniformly.

The design of the citation is completely different from the present invention. In the citation '393, the spring has no wide upper section, but a protrusion 18 is used. When the spring 10 is sucked, the spring 10 will enclose the protrusion 18 so as to be retained by the protrusion 18.

Thus the design of the citation 18 is different from the present invention.

(4) In the present invention, the sucking unit 4 has a simpler form than that of the citation '393, but the spring 1 is formed with a wide upper section 11 which is not seen in the citation '393.

However the total cost of the present invention is lower than that of the citation. Thereby the material used in the present invention is less than the citation '393.

(B)For the citation USP 4,733,036

(1) In new claim 6, we has a feature of **“and the top portion 11 of the helical spring is smaller than the bottom portion 13”**

This feature is illustrated in Fig. 1 of the present invention, in that it is illustrated that the size of the top portion 11 is smaller than the bottom portion 13 of the spring.

However in the citation '036, the upper section of the spring 5 (see Fig. 4 of the citation '036) is greaten than the lower section of the spring 5. Therefore it is not identical to the present invention.

(2) The citation '036 is used to a key switch. The function of the present invention is formed from the citation '036. In the present invention, see Fig. 5 of the present invention, when the spring is sucked by the sucking unit 4, and then the spring 1 is compressed. In the citation '036, the spring 5 is operated in an extension state, referring to Fig. 5 and 6 of the citation '036. Referring to Fig. 4, it is illustrated that the spring 5 is buckled to a key body. In operation, the spring is extended mechanically by operating the key body. Thereby the citation is used to a field not related to the present invention. The present invention uses the spring in a complete different field.

(3) In fact, from above consideration, the patentity of the present invention

will not affect the citation '036.

(D) For the combination of the USP 6,239,393 and USP 4,733,036

From above discussion, it is known that the two citations have the springs like that disclosed in the new claim 7, that is

“an inner end of the tapered shape 42 with a small opening being directly connected to one end of a straight channel 41”

“interior of the sucking unit 4 is hollowed;”

“the top portion 11 is greater than the middle portion 12, but is smaller than the bottom portion.

The middle portion 12 has the smallest size in the prior art.” as shown in Fig. 1 of the present invention. Thus, the combination of the two citations cannot get the spring of the present invention.

Thereby from above discussion, it is known that the citation has no tapered portion 42 of the present invention. Thus the combination of the two citations cannot get a sucking unit 4 (see Fig. 2 of the present invention).

From above discussion, it is known that the combination of all the citations cannot have no the main features of the new claim 7. Thus, the new claim 7 of the present invention is novel over the combination of the two citations.

(E) RESULT

Since in above discussion, it is apparent that no prior art has the features of the present invention, especially in new claim 7. Furthermore, as we know that no other prior art has features of the present invention. Thus, the present invention is novel and inventive.

If there is any error in the specification, or claims, applicant

requests and authorizes Examiner to amend the claims, specification and drawings of the present invention so that they can match the requirement of U. S. Patent. Attentions of Examiner to this matter are greatly appreciated.

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectively requested.

Respectfully submitted.

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